SEQUENCE LISTING

<110> Delaney, Allen

<120> Cancer Associated Protein Kinases and their Uses

<130> SMAR-043

<150> 60/368,853
<151> 2002-03-28

<150> PCT/CA03/00409
<151> 2003-03-21

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Ile His Arg Asp Leu Lys Pro Lys Asn Phe Leu Val Val His His Asn
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Ile Lys Ile Thr Asp Phe Gly Phe Asp Thr Arg Phe Thr Val Gly Gln
65 70 75 80
Lys Leu Gly Thr Phe Val Thr Arg Leu Leu Ala Val Leu Glu Pro Thr
85 90 95

Ser Gly Asp Ser Ile Cys Lys Ser Ala Cys Arg Pro Arg Lys Ala Lys
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Gly Thr Cys Leu Pro Gly Ile Ala Leu Ala Arg Thr Gln Cys Phe Gly
115 120 125
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Tyr Cys His Thr Arg Lys Ile Leu His Arg Asp Leu Lys Pro Gln Asn
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Glu Asp Lys Lys Val Arg Val Gln Arg Thr Gln Ser Thr Phe Asp Pro
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Val Arg Arg His Ser Ser Pro Ser Ser Pro Thr Ser Pro Lys Phe Gly
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Lys Ala Asp Ser Tyr Glu Lys Leu Glu Lys Leu Gly Glu Gly Ser Tyr
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Glu Tyr Val His Thr Asp Leu Cys Gln Tyr Met Asp Lys His Pro Gly
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Gly Leu His Pro Asp Asn Val Lys Leu Phe Leu Phe Gln Leu Leu Arg
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Gly Leu Ser Tyr Ile His Gln Arg Tyr Ile Leu His Arg Asp Leu Lys
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Pro Gln Asn Leu Leu Ile Ser Asp Thr Gly Glu Leu Lys Leu Ala Asp
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Phe Gly Leu Ala Arg Ala Lys Ser Val Pro Ser His Thr Tyr Ser Asn
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Glu Val Val Thr Leu Trp Tyr Arg Pro Pro Asp Val Leu Leu Gly Ser
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Thr Glu Tyr Ser Thr Cys Leu Asp Met Trp Gly Val Gly Cys Ile Phe
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Asp Thr Trp Pro Gly Val His Ser Leu Pro His Phe Lys Pro Glu Arg
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Ser Tyr Val Asn His Ala Glu Asp Leu Ala Ser Lys Leu Leu Gln Cys
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Asp Glu Ile His Glu Gly Asp Leu Val Glu Val Val Leu Ser Ala Leu
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Ala Thr Val Glu Asp Phe Gln Ile Arg Pro His Thr Leu Tyr Val His
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Ser Tyr Lys Ala Pro Thr Phe Cys Asp Tyr Cys Gly Glu Met Leu Trp
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Gly Leu Val Arg Gln Gly Leu Lys Cys Glu Gly Cys Gly Leu Asn Tyr
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His Lys Arg Cys Ala Phe Lys Ile Pro Asn Asn Cys Ser Gly Val Arg
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Lys Arg Arg Leu Ser Asn Val Ser Leu Pro Gly Pro Gly Leu Ser Val
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His Val His Gln Glu Pro Ser Lys Arg Ile Pro Ser Trp Ser Gly Arg
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Pro Ile Trp Met Glu Lys Met Val Met Cys Arg Val Lys Val Pro His
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Cys Leu Gly Glu Val Thr Phe Asn Gly Glu Pro Ser Ser Leu Gly Thr
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Ser Asn Pro His Cys Phe Glu Ile Ile Thr Asp Thr Met Val Tyr Phe
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Thr Gly Val Gly Leu Asp Val Ala Gln Ser Trp Glu Lys Ala Ile Arg
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Gly Lys His Arg Lys Thr Gly Arg Asp Val Ala Ile Lys Val Ile Asp
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Ser Leu Ser Gly Thr Phe Pro Phe Asn Glu Asp Glu Asp Ile Asn Asp
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Met Arg Lys Arg Tyr Ser Val Asp Lys Ser Leu Ser His Pro Trp Leu
820 825 830

Gln Asp Tyr Gln Thr Trp Leu Asp Leu Arg Glu Phe Glu Thr Arg Ile
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Gly Glu Arg Tyr Ile Thr His Glu Ser Asp Asp Ala Arg Trp Glu Ile
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Gln Ala Leu Lys Glu Gln Lys Leu Lys Ala Glu Ser Leu Ser Asp Lys
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Leu Asn Asp Leu Glu Lys Lys His Ala Met Leu Glu Met Asn Ala Arg
    50   55   60
Ser Leu Gln Gln Lys Leu Glu Thr Glu Arg Glu Leu Lys Gln Arg Leu
65   70   75   80
Leu Glu Glu Gln Ala Lys Leu Gln Gln Gln Met Asp Leu Gln Lys Asn
                85   90   95
His Ile Phe Arg Leu Thr Gln Gly Leu Gln Glu Ala Leu Asp Arg Ala
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Ser Gln Gln Thr Lys Leu Ile Asp Phe Leu Gln Ala Lys Met Asp Gln
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Pro Ala Lys Lys Lys Lys Val Pro Leu Gln Tyr Asn Glu Leu Lys Leu
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Ala Leu Glu Lys Glu Lys Ala Arg Cys Ala Glu Leu Glu Glu Ala Leu
            180                 185                 190
Gln Lys Thr Arg Ile Glu Leu Arg Ser Ala Arg Glu Glu Ala Ala His
        195                 200                 205
Arg Lys Ala Thr Asp His Pro His Pro Ser Thr Pro Ala Thr Ala Arg
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Gln Gln Ile Ala Met Ser Ala Ile Val Arg Ser Pro Glu His Gln Pro
225                 230                 235                 240
Ser Ala Met Ser Leu Leu Ala Pro Pro Ser Ser Arg Arg Lys Glu Ser
                245                 250                 255
Ser Thr Pro Glu Glu Phe Ser Arg Arg Leu Lys Glu Arg Met His His
            260                 265                 270
Asn Ile Pro His Arg Phe Asn Val Gly Leu Asn Met Arg Ala Thr Lys
        275                 280                 285
Cys Ala Val Cys Leu Asp Thr Val His Phe Gly Arg Gln Ala Ser Lys
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Cys Leu Glu Cys Gln Val Met Cys His Pro Lys Cys Ser Thr Cys Leu
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Pro Ala Thr Cys Gly Leu Pro Ala Glu Tyr Ala Thr His Phe Thr Glu
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Ala Phe Cys Arg Asp Lys Met Asn Ser Pro Gly Leu Gln Thr Lys Glu
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Pro Ser Ser Ser Leu His Leu Glu Gly Trp Met Lys Val Pro Arg Asn
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Asn Lys Arg Gly Gln Gln Gly Trp Asp Arg Lys Tyr Ile Val Leu Glu
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Gly Ser Lys Val Leu Ile Tyr Asp Asn Glu Ala Arg Glu Ala Gly Gln
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Arg Pro Val Glu Glu Phe Glu Leu Cys Leu Pro Asp Gly Asp Val Ser
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Ile His Gly Ala Val Gly Ala Ser Glu Leu Ala Asn Thr Ala Lys Ala
            420                 425                 430
Asp Val Pro Tyr Ile Leu Lys Met Glu Ser His Pro His Thr Thr Cys
        435                 440                 445
Trp Pro Gly Arg Thr Leu Tyr Leu Leu Ala Pro Ser Phe Pro Asp Lys
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Gln Arg Trp Val Thr Ala Leu Glu Ser Val Val Ala Gly Gly Arg Val
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Leu Asn Val Leu Lys Asn Ser Leu Thr His Val Pro Gly Ile Gly Ala
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Ser Tyr Gln Asp Lys Leu Arg Val Ile Cys Cys Lys Gly Asn Leu Val
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Lys Glu Ser Gly Thr Glu His His Arg Gly Pro Ser Thr Ser Arg Ser
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Lys Val Leu Phe Lys Ala Gln Leu Glu Lys Ala Gly Val Glu His Gln
165 170 175
Leu Arg Arg Glu Val Glu Ile Gln Ser His Leu Arg His Pro Asn Ile
180 185 190

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Leu Arg Leu Tyr Gly T[redacted]Phe His Asp Ala Thr Arg Val Tyr I[redacted]Ile
        195                 200                 205
Leu Glu Tyr Ala Pro Leu Gly Thr Val Tyr Arg Glu Leu Gln Lys Leu
    210                 215                 220
Ser Lys Phe Asp Glu Gln Arg Thr Ala Asn Leu Tyr Asn Arg Ile Ala
225                 230                 235                 240
Asn Ala Leu Ser Tyr Cys His Ser Lys Arg Val Ile His Arg Asp Ile
                245                 250                 255
Lys Pro Glu Asn Leu Leu Leu Gly Ser Ala Gly Glu Leu Lys Ile Ala
            260                 265                 270
Asp Phe Gly Trp Ser Val His Ala Pro Ser Ser Arg Arg Thr Thr Leu
        275                 280                 285
Cys Gly Thr Leu Asp Tyr Leu Pro Pro Glu Met Ile Glu Gly Arg Met
    290                 295                 300
His Asp Glu Lys Val Asp Leu Trp Ser Leu Gly Val Leu Cys Tyr Glu
305                 310                 315                 320
Phe Leu Val Gly Lys Pro Pro Phe Glu Ala Asn Thr Tyr Gln Glu Thr
                325                 330                 335
Tyr Lys Arg Ile Ser Arg Val Glu Phe Thr Phe Pro Asp Phe Val Thr
            340                 345                 350
Glu Gly Ala Arg Asp Leu Ile Ser Arg Leu Leu Lys His Asn Pro Ser
        355                 360                 365
Gln Arg Pro Met Leu Arg Glu Val Leu Glu His Pro Trp Ile Thr Ala
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Asn Ser Ser Lys Pro Ser Asn Cys Gln Asn Lys Glu Ser Ala Ser Lys
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Gln Ser
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<212> DNA
<213> Homo sapiens

<220>
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<223> PDK1 kinase polynucleotide

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<211> 436
<212> PRT
<213> Homo sapiens

<220>
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<223> PDK1 kinase polypeptide

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Gly Ser Ser Pro Ala Ser Glu Arg Gly Val Pro Gly Gln Val Asp Phe
        35   40   45
Tyr Ala Arg Phe Ser Pro Ser Pro Leu Ser Met Lys Gln Phe Leu Asp
    50   55   60
Phe Gly Ser Val Asn Ala Cys Glu Lys Thr Ser Phe Met Phe Leu Arg
65   70   75   80
Gln Glu Leu Pro Val Arg Leu Ala Asn Ile Met Lys Glu Ile Ser Leu
                85   90   95
Leu Pro Asp Asn Leu Leu Arg Thr Pro Ser Val Gln Leu Val Gln Ser
            100   105   110
Trp Tyr Ile Gln Ser Leu Gln Glu Leu Leu Asp Phe Lys Asp Lys Ser
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Ala Glu Asp Ala Lys Ala Ile Tyr Asp Phe Thr Asp Thr Val Ile Arg
    130   135   140
Ile Arg Asn Arg His Asn Asp Val Ile Pro Thr Met Ala Gln Gly Val
145   150   155   160
Ile Glu Tyr Lys Glu Ser Phe Gly Val Asp Pro Val Thr Ser Gln Asn
                165   170   175
Val Gln Tyr Phe Leu Asp Arg Phe Tyr Met Ser Arg Ile Ser Ile Arg
            180   185   190
Met Leu Leu Asn Gln His Ser Leu Leu Phe Gly Gly Lys Gly Lys Gly
        195   200   205
Ser Pro Ser His Arg Lys His Ile Gly Ser Ile Asn Pro Asn Cys Asn
    210   215   220
Val Leu Glu Val Ile Lys Asp Gly Tyr Glu Asn Ala Arg Arg Leu Cys
225   230   235   240
Asp Leu Tyr Tyr Ile Asn Ser Pro Glu Leu Glu Leu Glu Glu Leu Asn
                245   250   255
Ala Lys Ser Pro Gly Gln Pro Ile Gln Val Val Tyr Val Pro Ser His
            260   265   270
Leu Tyr His Met Val Phe Glu Leu Phe Lys Asn Ala Met Arg Ala Thr
        275   280   285
Met Glu His His Ala Asn Arg Gly Val Tyr Pro Pro Ile Gln Val His
    290   295   300
Val Thr Leu Gly Asn Glu Asp Leu Thr Val Lys Met Ser Asp Arg Gly
305   310   315   320
Gly Gly Val Pro Leu Arg Lys Ile Asp Arg Leu Phe Asn Tyr Met Tyr
                325   330   335
Ser Thr Ala Pro Arg Pro Arg Val Glu Thr Ser Arg Ala Val Pro Leu
            340   345   350
Ala Gly Phe Gly Tyr Gly Leu Pro Ile Ser Arg Leu Tyr Ala Gln Tyr
        355   360   365

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Phe Gln Gly Asp Leu L[redacted]Leu Tyr Ser Leu Glu Gly Tyr Gly T[redacted]Asp
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Ala Val Ile Tyr Ile Lys Ala Leu Ser Thr Asp Ser Ile Glu Arg Leu
385                 390                 395                 400
Pro Val Tyr Asn Lys Ala Ala Trp Lys His Tyr Asn Thr Asn His Glu
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Ala Asp Asp Trp Cys Val Pro Ser Arg Glu Pro Lys Asp Met Thr Thr
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<210> 17
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<212> DNA
<213> Homo sapiens

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<223> PAK4 kinase nucleotide

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<211> 591
<212> PRT
<213> Homo sapiens

<220>
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<223> PAK4 kinase polypeptide

<400> 18

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Thr Gly Leu Pro Arg Gln Trp Gln Ser Leu Ile Glu Glu Ser Ala Arg
        35                  40                  45
Arg Pro Lys Pro Leu Val Asp Pro Ala Cys Ile Thr Ser Ile Gln Pro
    50                  55                  60
Gly Ala Pro Lys Thr Ile Val Arg Gly Ser Lys Gly Ala Lys Asp Gly
65                  70                  75                  80
Ala Leu Thr Leu Leu Leu Asp Glu Phe Glu Asn Met Ser Val Thr Arg
                85                  90                  95
Ser Asn Ser Leu Arg Arg Asp Ser Pro Pro Pro Pro Ala Arg Ala Arg
            100                 105                 110
Gln Glu Asn Gly Met Pro Glu Glu Pro Ala Thr Thr Ala Arg Gly Gly
        115                 120                 125
Pro Gly Lys Ala Gly Ser Arg Gly Arg Phe Ala Gly His Ser Glu Ala
    130                 135                 140
Gly Gly Gly Ser Gly Asp Arg Arg Arg Ala Gly Pro Glu Lys Arg Pro
145                 150                 155                 160
Lys Ser Ser Arg Glu Gly Ser Gly Gly Pro Gln Glu Ser Ser Arg Asp
                165                 170                 175
Lys Arg Pro Leu Ser Gly Pro Asp Val Gly Thr Pro Gln Pro Ala Gly
            180                 185                 190
Leu Ala Ser Gly Ala Lys Leu Ala Ala Gly Arg Pro Phe Asn Thr Tyr
        195                 200                 205
Pro Arg Ala Asp Thr Asp His Pro Ser Arg Gly Ala Gln Gly Glu Pro
    210                 215                 220
His Asp Val Ala Pro Asn Gly Pro Ser Ala Gly Gly Leu Ala Ile Pro
225                 230                 235                 240
Gln Ser Ser Ser Ser Ser Ser Ser Arg Pro Pro Thr Arg Ala Arg Gly Ala
                245                 250                 255
Pro Ser Pro Gly Val Leu Gly Pro His Ala Ser Glu Pro Gln Leu Ala
            260                 265                 270
Pro Pro Ala Cys Thr Pro Ala Ala Pro Ala Val Pro Gly Pro Pro Gly
        275                 280                 285
Pro Arg Ser Pro Gln Arg Glu Pro Gln Arg Val Ser His Glu Gln Phe
    290                 295                 300
Arg Ala Ala Leu Gln Leu Val Val Asp Pro Gly Asp Pro Arg Ser Tyr
305                 310                 315                 320
Leu Asp Asn Phe Ile Lys Ile Gly Glu Gly Ser Thr Gly Ile Val Cys
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Ile Ala Thr Val Arg Ser Ser Gly Lys Leu Val Ala Val Lys Lys Met
            340                 345                 350
Asp Leu Arg Lys Gln Gln Arg Arg Glu Leu Leu Phe Asn Glu Val Val
        355                 360                 365
Ile Met Arg Asp Tyr Gln His Glu Asn Val Val Glu Met Tyr Asn Ser
    370                 375                 380
Tyr Leu Val Gly Asp Glu Leu Trp Val Val Met Glu Phe Leu Glu Gly
385                 390                 395                 400
Gly Ala Leu Thr Asp Ile Val Thr His Thr Arg Met Asn Glu Glu Gln
                405                 410                 415
Ile Ala Ala Val Cys Leu Ala Val Leu Gln Ala Leu Ser Val Leu His
            420                 425                 430
Ala Gln Gly Val Ile His Arg Asp Ile Lys Ser Asp Ser Ile Leu Leu
        435                 440                 445
Thr His Asp Gly Arg Val Lys Leu Ser Asp Phe Gly Phe Cys Ala Gln
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Val Ser Lys Glu Val Pro Arg Arg Lys Ser Leu Val Gly Thr Pro Tyr
465                 470                 475                 480
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Trp Met Ala Pro Glu [redacted] Ile Ser Arg Leu Pro Tyr Gly Pro [redacted] Val
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Asp Ile Trp Ser Leu Gly Ile Met Val Ile Glu Met Val Asp Gly Glu
            500                 505                 510
Pro Pro Tyr Phe Asn Glu Pro Pro Leu Lys Ala Met Lys Met Ile Arg
        515                 520                 525
Asp Asn Leu Pro Pro Arg Leu Lys Asn Leu His Lys Val Ser Pro Ser
    530                 535                 540
Leu Lys Gly Phe Leu Asp Arg Leu Leu Val Arg Asp Pro Ala Gln Arg
545                 550                 555                 560
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Pro Pro Ala Ser Ile Val Pro Leu Met Arg Gln Asn Arg Thr Arg
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<210> 19
<211> 6383
<212> DNA
<213> Homo sapiens

<220>
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<223> ITK kinase nucleotide

<400> 19

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<213> Homo sapiens

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Leu Thr Lys Ala Ser Leu Ala Tyr Phe Glu Asp Arg His Gly Lys Lys
35 40 45
Arg Thr Leu Lys Gly Ser Ile Glu Leu Ser Arg Ile Lys Cys Val Glu
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Ile Val Lys Ser Asp Ile Ser Ile Pro Cys His Tyr Lys Tyr Pro Phe
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Gln Val Val His Asp Asn Tyr Leu Leu Tyr Val Phe Ala Pro Asp Arg
85 90 95
Glu Ser Arg Gln Arg Trp Val Leu Ala Leu Lys Glu Glu Thr Arg Asn
100 105 110
Asn Asn Ser Leu Val Pro Lys Tyr His Pro Asn Phe Trp Met Asp Gly
115 120 125
Lys Trp Arg Cys Cys Ser Gln Leu Glu Lys Leu Ala Thr Gly Cys Ala
130 135 140
Gln Tyr Asp Pro Thr Lys Asn Ala Ser Lys Lys Pro Leu Pro Pro Thr
145 150 155 160
Pro Glu Asp Asn Arg Arg Pro Leu Trp Glu Pro Glu Glu Thr Val Val
165 170 175
Ile Ala Leu Tyr Asp Tyr Gln Thr Asn Asp Pro Gln Glu Leu Ala Leu
180 185 190
Arg Arg Asn Glu Glu Tyr Cys Leu Leu Asp Ser Ser Glu Ile His Trp
195 200 205
Trp Arg Val Gln Asp Arg Asn Gly His Glu Gly Tyr Val Pro Ser Ser
210 215 220
Tyr Leu Val Glu Lys Ser Pro Asn Asn Leu Glu Thr Tyr Glu Trp Tyr
225 230 235 240
Asn Lys Ser Ile Ser Arg Asp Lys Ala Glu Lys Leu Leu Leu Asp Thr
245 250 255
Gly Lys Glu Gly Ala Phe Met Val Arg Asp Ser Arg Thr Ala Gly Thr
260 265 270
Tyr Thr Val Ser Val Phe Thr Lys Ala Val Val Ser Glu Asn Asn Pro
275 280 285
Cys Ile Lys His Tyr His Ile Lys Glu Thr Asn Asp Asn Pro Lys Arg
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Tyr Tyr Val Ala Glu Lys Tyr Val Phe Asp Ser Ile Pro Leu Leu Ile
305 310 315 320
Asn Tyr His Gln His Asn Gly Gly Gly Leu Val Thr Arg Leu Arg Tyr

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Ile Gly Ser Gly Gln Phe Gly Leu Val His Leu Gly Tyr Trp Leu Asn
    370                 375                 380
Lys Asp Lys Val Ala Ile Lys Thr Ile Arg Glu Gly Ala Met Ser Glu
385                 390                 395                 400
Glu Asp Phe Ile Glu Glu Ala Glu Val Met Met Lys Leu Ser His Pro
                405                 410                 415
Lys Leu Val Gln Leu Tyr Gly Val Cys Leu Glu Gln Ala Pro Ile Cys
            420                 425                 430
Leu Val Phe Glu Phe Met Glu His Gly Cys Leu Ser Asp Tyr Leu Arg
        435                 440                 445
Thr Gln Arg Gly Leu Phe Ala Ala Glu Thr Leu Leu Gly Met Cys Leu
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Asp Val Cys Glu Gly Met Ala Tyr Leu Glu Glu Ala Cys Val Ile His
465                 470                 475                 480
Arg Asp Leu Ala Ala Arg Asn Cys Leu Val Gly Glu Asn Gln Val Ile
                485                 490                 495
Lys Val Ser Asp Phe Gly Met Thr Arg Phe Val Leu Asp Asp Gln Tyr
            500                 505                 510
Thr Ser Ser Thr Gly Thr Lys Phe Pro Val Lys Trp Ala Ser Pro Glu
        515                 520                 525
Val Phe Ser Phe Ser Arg Tyr Ser Ser Lys Ser Asp Val Trp Ser Phe
    530                 535                 540
Gly Val Leu Met Trp Glu Val Phe Ser Glu Gly Lys Ile Pro Tyr Glu
545                 550                 555                 560
Asn Arg Ser Asn Ser Glu Val Val Glu Asp Ile Ser Thr Gly Phe Arg
                565                 570                 575
Leu Tyr Lys Pro Arg Leu Ala Ser Thr His Val Tyr Gln Ile Met Asn
            580                 585                 590
His Cys Trp Lys Glu Arg Pro Glu Asp Arg Pro Ala Phe Ser Arg Leu
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<223> BMX kinase polynucleotide

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ggaaacaact tttttgtttt ggaaaaagaa agatgctgcc gctaatcagt ggatgaaaga 180
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Leu Leu Leu Lys Arg Ser Gln Gln Lys Lys Lys Met Ser Pro Asn Asn
        35   40   45
Tyr Lys Glu Arg Leu Phe Val Leu Thr Lys Thr Asn Leu Ser Tyr Tyr
    50   55   60
Glu Tyr Asp Lys Met Lys Arg Gly Ser Arg Lys Gly Ser Ile Glu Ile
65   70   75   80
Lys Lys Ile Arg Cys Val Glu Lys Val Asn Leu Glu Glu Gln Thr Pro
                85   90   95
Val Glu Arg Gln Tyr Pro Phe Gln Ile Val Tyr Lys Asp Gly Leu Leu
            100   105   110
Tyr Val Tyr Ala Ser Asn Glu Glu Ser Arg Ser Gln Trp Leu Lys Ala
        115   120   125
Leu Gln Lys Glu Ile Arg Gly Asn Pro His Leu Leu Val Lys Tyr His
    130   135   140
Ser Gly Phe Phe Val Asp Gly Lys Phe Leu Cys Cys Gln Gln Ser Cys

145 155 160
Lys Ala Ala Pro Gly [redacted]Thr Leu Trp Glu Ala Tyr Ala Asn [redacted]His
165 170 175
Thr Ala Val Asn Glu Glu Lys His Arg Val Pro Thr Phe Pro Asp Arg
180 185 190
Val Leu Lys Ile Pro Arg Ala Val Pro Val Leu Lys Met Asp Ala Pro
195 200 205
Ser Ser Ser Thr Thr Leu Ala Gln Tyr Asp Asn Glu Ser Lys Lys Asn
210 215 220
Tyr Gly Ser Gln Pro Pro Ser Ser Ser Thr Ser Leu Ala Gln Tyr Asp
225 230 235 240
Ser Asn Ser Lys Lys Ile Tyr Gly Ser Gln Pro Asn Phe Asn Met Gln
245 250 255
Tyr Ile Pro Arg Glu Asp Phe Pro Asp Trp Trp Gln Val Arg Lys Leu
260 265 270
Lys Ser Ser Ser Ser Ser Glu Asp Val Ala Ser Ser Asn Gln Lys Glu
275 280 285
Arg Asn Val Asn His Thr Thr Ser Lys Ile Ser Trp Glu Phe Pro Glu
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Ser Ser Ser Ser Glu Glu Glu Glu Asn Leu Asp Asp Tyr Asp Trp Phe
305 310 315 320
Ala Gly Asn Ile Ser Arg Ser Gln Ser Glu Gln Leu Leu Arg Gln Lys
325 330 335
Gly Lys Glu Gly Ala Phe Met Val Arg Asn Ser Ser Gln Val Gly Met
340 345 350
Tyr Thr Val Ser Leu Phe Ser Lys Ala Val Asn Asp Lys Lys Gly Thr
355 360 365
Val Lys His Tyr His Val His Thr Asn Ala Glu Asn Lys Leu Tyr Leu
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Gln His Asn Ser Ala Gly Met Ile Thr Arg Arg His Pro Val Ser Thr
405 410 415
Lys Ala Asn Lys Val Pro Asp Ser Val Ser Leu Ala Asn Gly Ile Trp
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Gln Phe Gly Val Val Gln Leu Gly Lys Trp Lys Gly Gln Tyr Asp Val
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485 490 495
Phe Tyr Gly Val Cys Ser Lys Glu Tyr Pro Ile Tyr Ile Val Thr Glu
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Tyr Ile Ser Asn Gly Cys Leu Leu Asn Tyr Leu Arg Ser His Gly Lys
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Gly Leu Glu Pro Ser Gln Leu Leu Glu Met Cys Tyr Asp Val Cys Glu
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Gly Met Ala Phe Leu Glu Ser His Gln Phe Ile His Arg Asp Leu Ala
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Ala Arg Asn Cys Leu Val Asp Arg Asp Leu Cys Val Lys Val Ser Asp
565 570 575
Phe Gly Met Thr Arg Tyr Val Leu Asp Asp Gln Tyr Val Ser Ser Val
580 585 590
Gly Thr Lys Phe Pro Val Lys Trp Ser Ala Pro Glu Val Phe His Tyr
595 600 605
Phe Lys Tyr Ser Ser Lys Ser Asp Val Trp Ala Phe Gly Ile Leu Met
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Trp Glu Val Phe Ser Leu Gly Lys Gln Pro Tyr Asp Leu Tyr Asp Asn
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Ser Gln Val Val Leu Lys Val Ser Gln Gly His Arg Leu Tyr Arg Pro

645 650 6
His Leu Ala Ser Asp T Ile Tyr Gln Ile Met Tyr Ser Cys T His
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Glu Pro Leu Arg Glu Lys Asp Lys His
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<223> PRKCM kinase polynucleotide

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Pro Gly Pro Ala Pro Phe Leu Ala Pro Val Ala Ala Pro Val Gly Gly
        35   40   45
Ile Ser Phe His Leu Gln Ile Gly Leu Ser Arg Glu Pro Val Leu Leu
    50   55   60
Leu Gln Asp Ser Ser Gly Asp Tyr Ser Leu Ala His Val Arg Glu Met
65   70   75   80
Ala Cys Ser Ile Val Asp Gln Lys Phe Pro Glu Cys Gly Phe Tyr Gly
                85   90   95
Met Tyr Asp Lys Ile Leu Leu Phe Arg His Asp Pro Thr Ser Glu Asn
            100   105   110
Ile Leu Gln Leu Val Lys Ala Ala Ser Asp Ile Gln Glu Gly Asp Leu
        115   120   125
Ile Glu Val Val Leu Ser Arg Ser Ala Thr Phe Glu Asp Phe Gln Ile
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Arg Pro His Ala Leu Phe Val His Ser Tyr Arg Ala Pro Ala Phe Cys
145   150   155   160
Asp His Cys Gly Glu Met Leu Trp Gly Leu Val Arg Gln Gly Leu Lys
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Cys Glu Gly Cys Gly Leu Asn Tyr His Lys Arg Cys Ala Phe Lys Ile
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Pro Asn Asn Cys Ser Gly Val Arg Arg Arg Arg Leu Ser Asn Val Ser
        195   200   205
Leu Thr Gly Val Ser Thr Ile Arg Thr Ser Ser Ala Glu Leu Ser Thr
    210   215   220
Ser Ala Pro Asp Glu Pro Leu Leu Gln Lys Ser Pro Ser Glu Ser Phe
225   230   235   240

Ile Gly Arg Glu Lys [redacted] Ser Asn Ser Gln Ser Tyr Ile Gly [redacted] Pro
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260 265 270
Phe Val Ile His Ser Tyr Thr Arg Pro Thr Val Cys Gln Tyr Cys Lys
275 280 285
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290 295 300
Arg Phe Asn Cys His Lys Arg Cys Ala Pro Lys Val Pro Asn Asn Cys
305 310 315 320
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325 330 335
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340 345 350
Asn Ser Gly Leu Met Asp Asp Met Glu Glu Ala Met Val Gln Asp Ala
355 360 365
Glu Met Ala Met Ala Glu Cys Gln Asn Asp Ser Gly Glu Met Gln Asp
370 375 380
Pro Asp Pro Asp His Glu Asp Ala Asn Arg Thr Ile Ser Pro Ser Thr
385 390 395 400
Ser Asn Asn Ile Pro Leu Met Arg Val Val Gln Ser Val Lys His Thr
405 410 415
Lys Arg Lys Ser Ser Thr Val Met Lys Glu Gly Trp Met Val His Tyr
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Thr Ser Lys Asp Thr Leu Arg Lys Arg His Tyr Trp Arg Leu Asp Ser
435 440 445
Lys Cys Ile Thr Leu Phe Gln Asn Asp Thr Gly Ser Arg Tyr Tyr Lys
450 455 460
Glu Ile Pro Leu Ser Glu Ile Leu Ser Leu Glu Pro Val Lys Thr Ser
465 470 475 480
Ala Leu Ile Pro Asn Gly Ala Asn Pro His Cys Phe Glu Ile Thr Thr
485 490 495
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500 505 510
Pro Ser Pro Asn Asn Ser Val Leu Thr Ser Gly Val Gly Ala Asp Val
515 520 525
Ala Arg Met Trp Glu Ile Ala Ile Gln His Ala Leu Met Pro Val Ile
530 535 540
Pro Lys Gly Ser Ser Val Gly Thr Gly Thr Asn Leu His Arg Asp Ile
545 550 555 560
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565 570 575
Ile Ser Thr Val Tyr Gln Ile Phe Pro Asp Glu Val Leu Gly Ser Gly
580 585 590
Gln Phe Gly Ile Val Tyr Gly Gly Lys His Arg Lys Thr Gly Arg Asp
595 600 605
Val Ala Ile Lys Ile Ile Asp Lys Leu Arg Phe Pro Thr Lys Gln Glu
610 615 620
Ser Gln Leu Arg Asn Glu Val Ala Ile Leu Gln Asn Leu His His Pro
625 630 635 640
Gly Val Val Asn Leu Glu Cys Met Phe Glu Thr Pro Glu Arg Val Phe
645 650 655
Val Val Met Glu Lys Leu His Gly Asp Met Leu Glu Met Ile Leu Ser
660 665 670
Ser Glu Lys Gly Arg Leu Pro Glu His Ile Thr Lys Phe Leu Ile Thr
675 680 685
Gln Ile Leu Val Ala Leu Arg His Leu His Phe Lys Asn Ile Val His
690 695 700
Cys Asp Leu Lys Pro Glu Asn Val Leu Leu Ala Ser Ala Asp Pro Phe
705 710 715 720
Pro Gln Val Lys Leu Cys Asp Phe Gly Phe Ala Arg Ile Ile Gly Glu
725 730 735

Lys Ser Phe Arg Arg S[redacted]Val Val Gly Thr Pro Ala Tyr Leu A[redacted]Pro
740 745 750

Glu Val Leu Arg Asn Lys Gly Tyr Asn Arg Ser Leu Asp Met Trp Ser
755 760 765

Val Gly Val Ile Ile Tyr Val Ser Leu Ser Gly Thr Phe Pro Phe Asn
770 775 780

Glu Asp Glu Asp Ile His Asp Gln Ile Gln Asn Ala Ala Phe Met Tyr
785 790 795 800

Pro Pro Asn Pro Trp Lys Glu Ile Ser His Glu Ala Ile Asp Leu Ile
805 810 815

Asn Asn Leu Leu Gln Val Lys Met Arg Lys Arg Tyr Ser Val Asp Lys
820 825 830

Thr Leu Ser His Pro Trp Leu Gln Asp Tyr Gln Thr Trp Leu Asp Leu
835 840 845

Arg Glu Leu Glu Cys Lys Ile Gly Glu Arg Tyr Ile Thr His Glu Ser
850 855 860

Asp Asp Leu Arg Trp Glu Lys Tyr Ala Gly Glu Gln Arg Leu Gln Tyr
865 870 875 880

Pro Thr His Leu Ile Asn Pro Ser Ala Ser His Ser Asp Thr Pro Glu
885 890 895

Thr Glu Glu Thr Glu Met Lys Ala Leu Gly Glu Arg Val Ser Ile Leu
900 905 910

<210> 25
<211> 1597
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (0)...(0)
<223> NEK6 kinase polynucleotide

<400> 25
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gcatgcagga tggcaggaca gcccggccac atgccccatg gagggagttc caacaacctc 180
tgccacaccc tggggcctgt gcatcctcct gacccacaga ggcatcccaa cacgctgtct 240
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gaggtgtaca aggccacctg cctgctggac aggaagacag tggctctgaa gaaggtgcag 360
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aagcaactga accacccaaa tatcatcaag tatttggact cgtttatcga agacaacgag 480
ctgaacattg tgctggagtt ggctgacgca ggggacctct cgcagatgat caagtacttt 540
aagaagcaga agcggctcat cccggagagg acagtatgga agtactttgt gcagctgtgc 600
agcgccgtgg agcacatgca ttcacgccgg gtgatgcacc gagacatcaa gcctgccaac 660
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gagaccgtgt gatttgtgta gtgagccttt gaaaatggtt agtaccgggt tcagtttagt 1500
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<210> 26
<211> 306
<212> PRT
<213> Homo sapiens

<220>
<221> UNSURE
<222> (0)...(0)
<223> NEK6 kinase polypeptide

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Val His Pro Pro Asp Pro Gln Arg His Pro Asn Thr Leu Ser Phe Arg
20 25 30
Cys Ser Leu Ala Asp Phe Gln Ile Glu Lys Lys Ile Gly Arg Gly Gln
35 40 45
Phe Ser Glu Val Tyr Lys Ala Thr Cys Leu Leu Asp Arg Lys Thr Val
50 55 60
Ala Leu Lys Lys Val Gln Ile Phe Glu Met Met Asp Ala Lys Ala Arg
65 70 75 80
Gln Asp Cys Val Lys Glu Ile Gly Leu Leu Lys Gln Leu Asn His Pro
85 90 95
Asn Ile Ile Lys Tyr Leu Asp Ser Phe Ile Glu Asp Asn Glu Leu Asn
100 105 110
Ile Val Leu Glu Leu Ala Asp Ala Gly Asp Leu Ser Gln Met Ile Lys
115 120 125
Tyr Phe Lys Lys Gln Lys Arg Leu Ile Pro Glu Arg Thr Val Trp Lys
130 135 140
Tyr Phe Val Gln Leu Cys Ser Ala Val Glu His Met His Ser Arg Arg
145 150 155 160
Val Met His Arg Asp Ile Lys Pro Ala Asn Val Phe Ile Thr Ala Thr
165 170 175
Gly Val Val Lys Leu Gly Asp Leu Gly Leu Gly Arg Phe Phe Ser Ser
180 185 190
Glu Thr Thr Ala Ala His Ser Leu Val Gly Thr Pro Tyr Tyr Met Ser
195 200 205
Pro Glu Arg Ile His Glu Asn Gly Tyr Asn Phe Lys Ser Asp Ile Trp
210 215 220
Ser Leu Gly Cys Leu Leu Tyr Glu Met Ala Ala Leu Gln Ser Pro Phe
225 230 235 240
Tyr Gly Asp Lys Met Asn Leu Phe Ser Leu Cys Gln Lys Ile Glu Gln
245 250 255
Cys Asp Tyr Pro Pro Leu Pro Gly Glu His Tyr Ser Glu Lys Leu Arg
260 265 270
Glu Leu Val Ser Met Cys Ile Cys Pro Asp Pro His Gln Arg Pro Asp
275 280 285
Ile Gly Tyr Val His Gln Val Ala Lys Gln Met His Ile Trp Met Ser
290 295 300
Ser Thr
305

<210> 27
<211> 1890
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (0)...(0)
<223> PDPK1 kinase polynucleotide

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ccagtccagc gtggtgttat gttcctgccc atccccatca atggtgagga cccagactga 180
gtccagcacg ccccctggca ttcctggtgg cagcaggcag ggccccgcca tggacggcac 240
tgcagccgag cctcggcccg gcgccggctc cctgcagcat gcccagcctc cgccgcagcc 300
tcggaagaag cggcctgagg acttcaagtt tgggaaaatc cttggggaag gctcttttc 360
cacggttgtc ctggctcgag aactggcaac ctccagagaa tatgcgatta aaattctgga 420
gaagcgacat atcataaaag agaacaaggt cccctatgta accagagagc gggatgtcat 480
gtcgcgcctg gatcacccct tctttgttaa gctttacttc acatttcagg acgacgaaaa 540
actgtatttc ggccttagtt atgccaaaaa tggagaacta cttaaatata ttcgcaaaat 600
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gtacattcac gatctggact cgaactcctt tgaactggac ttacagtttt ccgaagatga 1380
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agaggcggaa accttgcagc atttttattt 1890

<210> 28
<211> 556
<212> PRT
<213> Homo sapiens

<220>
<221> UNSURE
<222> (0)...(0)
<223> PDPK1 kinase polypeptide

<400> 28
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            20   25   30
Thr Glu Ser Ser Thr Pro Pro Gly Ile Pro Gly Gly Ser Arg Gln Gly
        35   40   45
Pro Ala Met Asp Gly Thr Ala Ala Glu Pro Arg Pro Gly Ala Gly Ser
    50   55   60
Leu Gln His Ala Gln Pro Pro Pro Gln Pro Arg Lys Lys Arg Pro Glu
65   70   75   80
Asp Phe Lys Phe Gly Lys Ile Leu Gly Glu Gly Ser Phe Ser Thr Val
                85   90   95
Val Leu Ala Arg Glu Leu Ala Thr Ser Arg Glu Tyr Ala Ile Lys Ile
            100   105   110
Leu Glu Lys Arg His Ile Ile Lys Glu Asn Lys Val Pro Tyr Val Thr
        115   120   125
Arg Glu Arg Asp Val Met Ser Arg Leu Asp His Pro Phe Phe Val Lys

130 135 140
Leu Tyr Phe Thr Phe [redacted] Asp Asp Glu Lys Leu Tyr Phe Gly [redacted] Ser
145 150 155 160
Tyr Ala Lys Asn Gly Glu Leu Leu Lys Tyr Ile Arg Lys Ile Gly Ser
165 170 175
Phe Asp Glu Thr Cys Thr Arg Phe Tyr Thr Ala Glu Ile Val Ser Ala
180 185 190
Leu Glu Tyr Leu His Gly Lys Gly Ile Ile His Arg Asp Leu Lys Pro
195 200 205
Glu Asn Ile Leu Leu Asn Glu Asp Met His Ile Gln Ile Thr Asp Phe
210 215 220
Gly Thr Ala Lys Val Leu Ser Pro Glu Ser Lys Gln Ala Arg Ala Asn
225 230 235 240
Ser Phe Val Gly Thr Ala Gln Tyr Val Ser Pro Glu Leu Leu Thr Glu
245 250 255
Lys Ser Ala Cys Lys Ser Ser Asp Leu Trp Ala Leu Gly Cys Ile Ile
260 265 270
Tyr Gln Leu Val Ala Gly Leu Pro Pro Phe Arg Ala Gly Asn Glu Tyr
275 280 285
Leu Ile Phe Gln Lys Ile Ile Lys Leu Glu Tyr Asp Phe Pro Glu Lys
290 295 300
Phe Phe Pro Lys Ala Arg Asp Leu Val Glu Lys Leu Leu Val Leu Asp
305 310 315 320
Ala Thr Lys Arg Leu Gly Cys Glu Glu Met Glu Gly Tyr Gly Pro Leu
325 330 335
Lys Ala His Pro Phe Phe Glu Ser Val Thr Trp Glu Asn Leu His Gln
340 345 350
Gln Thr Pro Pro Lys Leu Thr Ala Tyr Leu Pro Ala Met Ser Glu Asp
355 360 365
Asp Glu Asp Cys Tyr Gly Asn Tyr Asp Asn Leu Leu Ser Gln Phe Gly
370 375 380
Cys Met Gln Val Ser Ser Ser Ser Ser Ser His Ser Leu Ser Ala Ser
385 390 395 400
Asp Thr Gly Leu Pro Gln Arg Ser Gly Ser Asn Ile Glu Gln Tyr Ile
405 410 415
His Asp Leu Asp Ser Asn Ser Phe Glu Leu Asp Leu Gln Phe Ser Glu
420 425 430
Asp Glu Lys Arg Leu Leu Leu Glu Lys Gln Ala Gly Gly Asn Pro Trp
435 440 445
His Gln Phe Val Glu Asn Asn Leu Ile Leu Lys Met Gly Pro Val Asp
450 455 460
Lys Arg Lys Gly Leu Phe Ala Arg Arg Arg Gln Leu Leu Leu Thr Glu
465 470 475 480
Gly Pro His Leu Tyr Tyr Val Asp Pro Val Asn Lys Val Leu Lys Gly
485 490 495
Glu Ile Pro Trp Ser Gln Glu Leu Arg Pro Glu Ala Lys Asn Phe Lys
500 505 510
Thr Phe Phe Val His Thr Pro Asn Arg Thr Tyr Tyr Leu Met Asp Pro
515 520 525
Ser Gly Asn Ala His Lys Trp Cys Arg Lys Ile Gln Glu Val Trp Arg
530 535 540
Gln Arg Tyr Gln Ser His Pro Asp Ala Ala Val Gln
545 550 555